

Exhibit A

```
Qy      1 SYISNAGSSEAAAKAWIAGRESGGNYATNGQYIGKYQLAASYLGGDYSPANQERVADQY 60
        ||||| ||||||| ||||||| :| | ||||||| :||| ||| ||| |||
Db     221 SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY 280

Qy      61 VASRYGSWIAAQFWQANGWY 81
        | ||||| ||:|| |||
Db     281 VKSRYGSWTGAQKFWINGWY 301
```

ClustalW2 Results

Results of search

Number of sequences	9
Alignment score	16900
Sequence format	Pearson
Sequence type	aa
JalView	Start Jalview
Output file	clustalw2-20090112-17224691.output
Alignment file	clustalw2-20090112-17224691.aln
Guide tree file	clustalw2-20090112-17224691.dnd
Your input file	clustalw2-20090112-17224691.input

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To save a result file right-click the file link in the above table and choose "Save Target As".
If you cannot see the JalView button, reload the page and check your browser settings to enable Java Applets.

Scores Table

Sort by [Sequence Number](#) [View Output File](#)

SeqA Name	Len(aa)	SeqB Name	Len(aa)	Score
1 SEQ_ID_NO2	81	2 NCC553_apf1	81	86
1 SEQ_ID_NO2	81	3 DSM20553_apf1	81	86
1 SEQ_ID_NO2	81	4 ATCC11506_apf1	81	86
1 SEQ_ID_NO2	81	5 ATCC33200_apf1	81	83
1 SEQ_ID_NO2	81	6 ATCC19992_apf1	81	86
1 SEQ_ID_NO2	81	7 VPI11759_apf1	81	81
1 SEQ_ID_NO2	81	8 ATCC332_apf1	81	86
1 SEQ_ID_NO2	81	9 Ehrmann	81	86
2 NCC553_apf1	81	3 DSM20553_apf1	81	100
2 NCC553_apf1	81	4 ATCC11506_apf1	81	100
2 NCC553_apf1	81	5 ATCC33200_apf1	81	97
2 NCC553_apf1	81	6 ATCC19992_apf1	81	97
2 NCC553_apf1	81	7 VPI11759_apf1	81	92
2 NCC553_apf1	81	8 ATCC332_apf1	81	98
2 NCC553_apf1	81	9 Ehrmann	81	95
3 DSM20553_apf1	81	4 ATCC11506_apf1	81	100
3 DSM20553_apf1	81	5 ATCC33200_apf1	81	97
3 DSM20553_apf1	81	6 ATCC19992_apf1	81	97
3 DSM20553_apf1	81	7 VPI11759_apf1	81	92
3 DSM20553_apf1	81	8 ATCC332_apf1	81	98
3 DSM20553_apf1	81	9 Ehrmann	81	95
4 ATCC11506_apf1	81	5 ATCC33200_apf1	81	97
4 ATCC11506_apf1	81	6 ATCC19992_apf1	81	97
4 ATCC11506_apf1	81	7 VPI11759_apf1	81	92
4 ATCC11506_apf1	81	8 ATCC332_apf1	81	98
4 ATCC11506_apf1	81	9 Ehrmann	81	95
5 ATCC33200_apf1	81	6 ATCC19992_apf1	81	95
5 ATCC33200_apf1	81	7 VPI11759_apf1	81	90
5 ATCC33200_apf1	81	8 ATCC332_apf1	81	96
5 ATCC33200_apf1	81	9 Ehrmann	81	92
6 ATCC19992_apf1	81	7 VPI11759_apf1	81	93
6 ATCC19992_apf1	81	8 ATCC332_apf1	81	96
6 ATCC19992_apf1	81	9 Ehrmann	81	93

Sequence comparison
results of Ventura apf1
← Sequences with
SEQ ID NO:2

7	VPI11759_apf1	81	8	ATCC332_apf1	81	91
7	VPI11759_apf1	81	9	Ehrmann	81	88
8	ATCC332_apf1	81	9	Ehrmann	81	96

=====

PLEASE NOTE: Some scores may be missing from the above table if the alignment was done using multiple CPU mode. Please check the output

Sort by

Sequence Number ▾

View Output File

Alignment

Show Colors

View Alignment File

CLUSTAL 2.0.10 multiple sequence alignment

DSM20553_apf1	SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
ATCC11506_apf1	SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
NCC553_apf1	SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
ATCC33200_apf1	SYTSNVSSSEAAAKAWIAGRESGGSYSARNGQYIGKLQLSASYLGGDYSAANQERVADNY	60
ATCC332_apf1	SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
ATCC19992_apf1	SYTSNAGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
VPI11759_apf1	SYTSNAGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
Ehrmann	SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY	60
SEQ_ID_NO2	SYTSNAGSEAAAKAWIAGRESGGNYNATNGQYIGKYQLAASYLGGDYSPANQERVADQY	60
	*****.*.*****.*.* ***** **:*****.*****.*	
DSM20553_apf1	VKSRYGWSNAQSFQWQANGWY	81
ATCC11506_apf1	VKSRYGWSNAQSFQWQANGWY	81
NCC553_apf1	VKSRYGWSNAQSFQWQANGWY	81
ATCC33200_apf1	VKSRYGWSNAQSFQWQANGWY	81
ATCC332_apf1	VKSRYGWSNAQKFWQANGWY	81
ATCC19992_apf1	VKSRYGWSNAQSFWQSNQWY	81
VPI11759_apf1	VKSRYGWSNAQSFQWQCKRLV	81
Ehrmann	VKSRYGSWTGAQKFWQTNGWY	81
SEQ_ID_NO2	VASRYGSWTAAQQFWQANGWY	81
	* *****: **.*** :	

PLEASE NOTE: Showing colors on large alignments is slow.

Show Colors

View Alignment File

Guide Tree

Show as Cladogram Tree

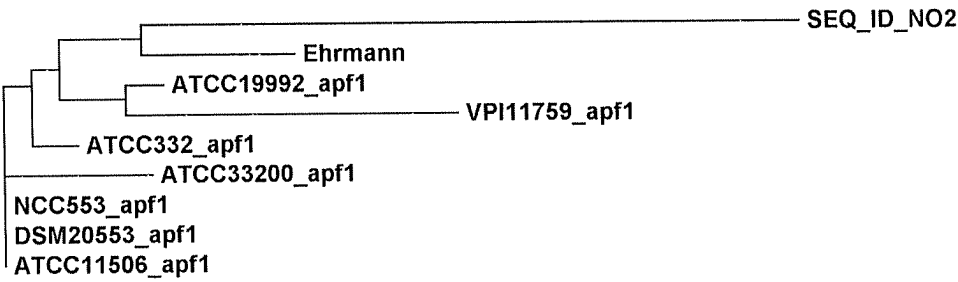
Show Distances

View DND File

```
(
(
(
(
(
(
SEQ_ID_NO2:0.11023,
Ehrmann:0.02557)
:0.01358,
(
ATCC19992_apf1:0.00617,
VPI11759_apf1:0.05556)
:0.01111)
:0.00463,
```

```
ATCC332_apf1:0.00772)
:0.00463,
ATCC33200_apf1:0.02469)
:0.00000,
NCC553_apf1:0.00000)
:0.00000,
DSM20553_apf1:0.00000,
ATCC11506_apf1:0.00000);
```

Phylogram



Show as Cladogram Tree

Show Distances

View DND File

Right-click on the above tree to see display options.
Problems printing? [Read how to print a Phylogram or Cladogram.](#)

ClustalW2 Results

Results of search

Number of sequences	9
Alignment score	17356
Sequence format	Pearson
Sequence type	aa
JalView	Start Jalview
Output file	clustalw2-20090112-17234977.output
Alignment file	clustalw2-20090112-17234977.aln
Guide tree file	clustalw2-20090112-17234977.dnd
Your input file	clustalw2-20090112-17234977.input

[SUBMIT ANOTHER JOB](#)

To save a result file right-click the file link in the above table and choose "Save Target As".
If you cannot see the JalView button, reload the page and check your browser settings to enable Java Applets.

Scores Table

Sort by [Sequence Number](#) [View Output File](#)

SeqA Name	Len(aa)	SeqB Name	Len(aa)	Score
=====				
1 SEQ_ID_NO2	81	2 ATCC11506_apf2	81	85
1 SEQ_ID_NO2	81	3 NCC553_apf2	81	86
1 SEQ_ID_NO2	81	4 ATCC332_apf2	81	87
1 SEQ_ID_NO2	81	5 ATCC33200_apf2	81	86
1 SEQ_ID_NO2	81	6 DSM20553_apf2	81	86
1 SEQ_ID_NO2	81	7 ATCC19992_apf2	81	87
1 SEQ_ID_NO2	81	8 VPI11759_apf2	81	86
1 SEQ_ID_NO2	81	9 Ehrmann	81	86
2 ATCC11506_apf2	81	3 NCC553_apf2	81	98
2 ATCC11506_apf2	81	4 ATCC332_apf2	81	97
2 ATCC11506_apf2	81	5 ATCC33200_apf2	81	96
2 ATCC11506_apf2	81	6 DSM20553_apf2	81	98
2 ATCC11506_apf2	81	7 ATCC19992_apf2	81	97
2 ATCC11506_apf2	81	8 VPI11759_apf2	81	98
2 ATCC11506_apf2	81	9 Ehrmann	81	98
3 NCC553_apf2	81	4 ATCC332_apf2	81	98
3 NCC553_apf2	81	5 ATCC33200_apf2	81	97
3 NCC553_apf2	81	6 DSM20553_apf2	81	100
3 NCC553_apf2	81	7 ATCC19992_apf2	81	98
3 NCC553_apf2	81	8 VPI11759_apf2	81	100
3 NCC553_apf2	81	9 Ehrmann	81	100
4 ATCC332_apf2	81	5 ATCC33200_apf2	81	97
4 ATCC332_apf2	81	6 DSM20553_apf2	81	98
4 ATCC332_apf2	81	7 ATCC19992_apf2	81	100
4 ATCC332_apf2	81	8 VPI11759_apf2	81	98
4 ATCC332_apf2	81	9 Ehrmann	81	98
5 ATCC33200_apf2	81	6 DSM20553_apf2	81	97
5 ATCC33200_apf2	81	7 ATCC19992_apf2	81	97
5 ATCC33200_apf2	81	8 VPI11759_apf2	81	97
5 ATCC33200_apf2	81	9 Ehrmann	81	97
6 DSM20553_apf2	81	7 ATCC19992_apf2	81	98
6 DSM20553_apf2	81	8 VPI11759_apf2	81	100
6 DSM20553_apf2	81	9 Ehrmann	81	100

Sequence comparison
← results of Ventura apf2
Sequences with
SEQ ID NO:2 .

7	ATCC19992_apf2	81	8	VPI11759_apf2	81	98
7	ATCC19992_apf2	81	9	Ehrmann	81	98
8	VPI11759_apf2	81	9	Ehrmann	81	100

=====

PLEASE NOTE: Some scores may be missing from the above table if the alignment was done using multiple CPU mode. Please check the output.

Sort by

Alignment

CLUSTAL 2.0.10 multiple sequence alignment

```

NCC553_apf2      SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIG-YQLSASYLGGDYSAANQERVADNY 59
DSM20553_apf2    SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY 60
VPI11759_apf2    SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY 60
Ehrmann          SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY 60
ATCC11506_apf2   SYTSNVSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY 60
ATCC332_apf2     SYTSNAGSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAANQERVADNY 60
ATCC19992_apf2   SYTSNAGSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSEANQERVADNY 60
ATCC33200_apf2   SYTSNTSGSEAAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSEANQERVADNY 60
SEQ_ID_NO2       SYTSNAGSGSEAAAKAWIAGRESGGNYNATNGQYIGKYQLAASYLGGDYSPANQERVADQY 60
*****.*****:*****.*.* ***** ***:***** *****:*
```

```

NCC553_apf2      VKSRYGSWTGAQKFWQTNGWY 80
DSM20553_apf2    VKSRYGSWTGAQKFWQTNGWY 81
VPI11759_apf2    VKSRYGSWTGAQKFWQTNGWY 81
Ehrmann          VKSRYGSWTGAQKFWQTNGWY 81
ATCC11506_apf2   VKSRYGSWTGAQKFWQTNGWY 81
ATCC332_apf2     VKSRYGSWTGAQKFWQTNGWY 81
ATCC19992_apf2   VKSRYGSWTGAQKFWQTNGWY 81
ATCC33200_apf2   VKSRYGSWTGAQKFWQTNGWY 81
SEQ_ID_NO2       VASRYGSWTAAQQFWQANGWY 81
* *****.**:***:****
```

PLEASE NOTE: Showing colors on large alignments is slow.

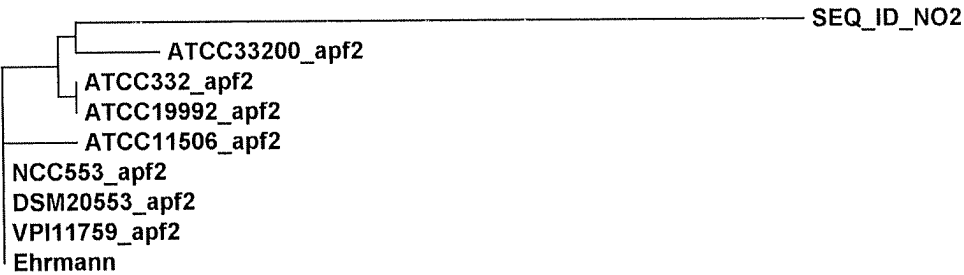
Guide Tree

```

(
(
(
(
SEQ_ID_NO2:0.12179,
ATCC33200_apf2:0.01401)
:0.00317,
(
ATCC332_apf2:0.00000,
ATCC19992_apf2:0.00000)
:0.00300)
:0.00929,
ATCC11506_apf2:0.01232)
:0.00000,
```

```
(
(
NCC553_apf2:0.00000,
DSM20553_apf2:0.00000)
:0.00000,
VPI11759_apf2:0.00000)
:0.00000,
Ehrmann:0.00000);
```

Phylogram



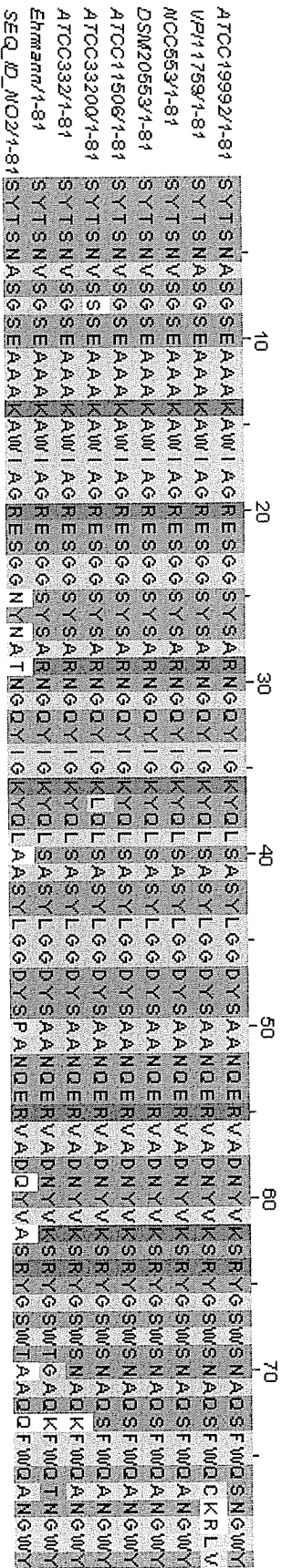
Show as Cladogram Tree

Show Distances

View DND File

Right-click on the above tree to see display options.
Problems printing? Read [how to print a Phylogram or Cladogram](#).

Sequence comparisons between Ventura *APF1* and Ehrmann sequences and SEQ ID NO:2 (Jalview of ClustalW2 results)



Sequence comparisons between Ventura *APF2* and Ehrmann sequences and SEQ ID NO:2 (Jalview of ClustalW2 results)

